

CLARK HILL

Fax: 313-965-8570

Jan 18 2006 12:03

P. 01

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From: Robin W. Asher  
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No. of Pages Including Cover Sheet: 15

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## Message:

RE: Deposit Account Number 50-1759  
Application No. 10/539,741  
Filing Date: 06/20/2005  
Clark Hill ref: 25266-101943

Attached is a copy of the original filing transmittal of 06/20/2005 together with a preliminary amendment filed 01/17/2006 which eliminates the multiple dependent claims. We ask that you immediately refund \$360 to our Deposit Account.

Please expedite this request. If you have any questions, please do not hesitate to call me directly at (313) 965-8665. Thank you for your attention to this important matter.

Robin W. Asher, Reg. No. 41,590  
Clark Hill PLC  
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P. 02

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1449; pat app 35 pp; 18 sheets dwgs figs 1-14; search rept

USSN: PCT/CA2003/001999

Filing Date:

Title: Dental Handpiece

Inventor: Turner,

Atty: Robin W. Asher

Docket no. 25266-101943

10/539741

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USSN: PCT/CA2003/001999

Filing Date:

Title: Dental Handpiece

Inventor: Turner,

Atty: Robin W. Asher

Docket no. 25266-101943

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Intellectual Properties Department  
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P. 03

FORM PTO-1090 (Revised) U.S. PATENT AND TRADE OFFICE: U.S. DEPARTMENT OF COMMERCE (REV. 12-2004)		ATTORNEY'S DOCKET NUMBER 25266-101943
<b>TRANSMITTAL LETTER TO THE UNITED STATES          - DESIGNATED/ELECTED OFFICE (DO/EO/US)          CONCERNING A SUBMISSION UNDER 35 U.S.C. 371</b>		U.S. APPLICATION NO. (if known, see 37 CFR 1.5)
INTERNATIONAL APPLICATION NO. PCT/CA2003/001999	INTERNATIONAL FILING DATE 21 Dec 2003	PRIORITY DATE CLAIMED 30 Dec 2002
TITLE OF INVENTION DENTAL HANDPIECE		
APPLICANT(S) FOR DO/EO/US Turner		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a submission under 35 U.S.C. 371. 2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a submission under 35 U.S.C. 371. 3. <input type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below. 4. <input type="checkbox"/> The US has been elected (Article 31). 5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371 (c)(2)) a. <input type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau). b. <input checked="" type="checkbox"/> has been communicated by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 6. <input type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)). a. <input type="checkbox"/> is attached hereto. b. <input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4). 7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3)) a. <input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau). b. <input checked="" type="checkbox"/> have been communicated by the International Bureau. c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired. d. <input type="checkbox"/> have not been made and will not be made. 8. <input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 9. <input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)). 10. <input type="checkbox"/> An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)). 11. <input type="checkbox"/> A copy of the International Preliminary Examination Report (PCT/PEA/409). 12. <input checked="" type="checkbox"/> A copy of the International Search Report (PCT/ISA/210). Items 13 to 23 below concern document(s) or information included: 13. <input checked="" type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 14. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included. 15. <input type="checkbox"/> A <b>FIRST</b> preliminary amendment. 16. <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment. 17. <input type="checkbox"/> A substitute specification. 18. <input type="checkbox"/> A power of attorney and/or change of address letter. 19. <input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 37 CFR 1.821 - 1.825. 20. <input type="checkbox"/> A second copy of the published International Application under 35 U.S.C. 154(d)(4). 21. <input type="checkbox"/> A second copy of the English language translation of the International Application under 35 U.S.C. 154(d)(4). 22. <input checked="" type="checkbox"/> Express Mail Label No. EL 962735684 US 23. <input checked="" type="checkbox"/> Other items or information: return postcard		

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PCTUS1/REV05

PTO-1390 (Rev. 12-2004)

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U.S. APPLICATION NO. (if known, see 37 CFR 1.5)		INTERNATIONAL APPLICATION NO. PCT/CA2003/001999		ATTORNEY'S DOCKET NUMBER 25266-101943	
24. The following fees are submitted:				Applicant use	Office use
<input checked="" type="checkbox"/> a) Basic national fee ..... \$300.00				\$	\$300.00
<input checked="" type="checkbox"/> b) Examination fee ..... \$200.00				\$	\$200.00
<input checked="" type="checkbox"/> c) Search fee ..... \$500.00				\$	\$500.00
TOTAL OF ABOVE CALCULATIONS = \$1000.00				\$	\$1,000.00
<input type="checkbox"/> Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing of computer program listing filed in an electronic medium). The fee is \$250 for each additional 50 sheets of paper or fraction thereof.					
Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof (round up to a whole)	RATE		
53 - 100 =	-47 /50 =	0	x \$250.00	\$	\$0.00
Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.482(e)).				\$	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	34 - 20 =	14	x \$50.00	\$	\$700.00
Independent claims	11 - 3 =	8	x \$200.00	\$	\$1,600.00
MULTIPLE DEPENDENT CLAIMS (if applicable) <input checked="" type="checkbox"/> + \$360.00				\$	\$360.00
TOTAL OF ABOVE CALCULATIONS =				\$	\$3,660.00
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$	\$0.00
SUBTOTAL =				\$	\$3,660.00
Processing fee of \$130.00 for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.482(f)).				\$	\$0.00
TOTAL NATIONAL FEE =				\$	\$3,660.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40 per property +				\$	\$0.00
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Amount to be charged:				\$	
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NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the International Application to pending status.					
SEND ALL CORRESPONDENCE TO:					
Robin W. Asher, Reg. No. 41,590					
Clark Hill PLC					
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SIGNATURE				Robin W. Asher	
NAME				41,590	
REGISTRATION NUMBER					

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P.05

Appl'n No: 10/539,741  
Preliminary Amd't dated January 16, 2006

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Art Unit: N/A  
Examiner: N/A  
Applicant: Turner, Derek  
Serial No: 10/539,741  
Filing Date: June 20, 2005  
Title: Dental Handpiece

Confirmation No.:

**PRELIMINARY AMENDMENT**

Mail Stop Non-Fee Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Please amend the above-captioned patent application as set forth below.

Amendments to the Claims are reflected in the listing of claims, which begins on page 2  
of this paper.

Remarks begin on page 11 of this paper.

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P. 06

Appl'n No: 10/539,741  
Preliminary Amd't dated January 16, 2006

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Original) A medical or dental turbine handpiece including a handle portion for gripping by a user, a drive head connected with the handle portion and forming a turbine housing, a turbine in the turbine housing for rotation about an axis of rotation and having an axial tool bore for receiving a shaft of a rotatable tool insertable into the handpiece, and a pair of axially spaced apart bearings for rotatably supporting the turbine in the turbine housing; characterized in that the handpiece further includes a torque transfer arrangement for transferring torque generated by the turbine to a tool with a shaft portion of non-circular cross-section, the torque transfer arrangement including a locking socket for receiving the shaft portion and having a complementary cross-section for locking the shaft portion against rotation in the socket while permitting axial insertion of the shaft portion into the locking socket, the locking socket being connected to the turbine for rotation therewith.
2. (Original) The handpiece as defined in claim 1, characterized in that the locking socket is integrated into the turbine and is an enlarged portion of the tool bore for receiving a tool with a

Appl'n No: 10/539,741

Preliminary Amd't dated January 16, 2006

shaft portion in the form of a radially enlarged locking boss having a diameter larger than a diameter of the shaft of the tool.

3. (Original) The handpiece as defined in claim 1, characterized in that the locking socket is constructed for receiving a shaft portion of triangular cross-section, the locking socket having cross-section complementary to that of the shaft portion.

4. (Original) The handpiece of claim 1, characterized in that the locking socket is a hollow spindle received in the tool bore and fastened therein, the spindle having a cylindrical bore for receiving the shaft portion of the tool and having a protrusion extending radially inwardly into the cylindrical bore for locking the shaft portion in the spindle against rotation, while permitting axial insertion of shaft portion into the locking socket.

5. (Currently Amended) The handpiece of claim 4, wherein a surface[[s]] of the protrusion which engages the shaft portion during insertion of the tool into the spindle has a rounded shape for automatically directing the shaft portion past the protrusion to achieve a self-alignment of the shaft portion in the locking socket during insertion of the tool.

6. (Currently Amended) The handpiece of claim 4, characterized in that the handpiece further includes a burr retaining arrangement for releasably retaining the tool in the tool bore against axial movement after complete insertion of the tool into the bore, the burr retaining arrangement including a pair of complementary, interengaging elements respectively incorporated into the spindle and the tool shaft.

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Jan 18 2006 12:05

P. 08

Appl'n No: 10/539,741

Preliminary Amd't dated January 16, 2006

7. (Original) A torque transfer arrangement for a dental handpiece having a turbine for rotatably driving a burr about an axis of rotation, the burr having a burr shaft with a non-circular shaft portion and the turbine having an axial tool bore for receiving the burr shaft, the torque transfer arrangement being characterized in that it includes a locking socket with an axial bore for receiving the shaft portion of the burr shaft, the locking socket being connectable with the turbine for rotation therewith; and a torque transfer member connected with the locking socket for locking the shaft portion against rotation relative to the locking socket.
8. (Original) The torque transfer arrangement of claim 7, characterized in that the locking socket is insertable into the tool bore.
9. (Original) The torque transfer arrangement of claim 7, characterized in that the locking socket is a hollow spindle insertable into the tool bore for connection with the turbine and that the torque transfer member is a wall portion of the spindle extending radially inwardly into the axial bore.
10. (Original) The torque transfer arrangement of claim 7, characterized in that the locking socket is incorporated into the turbine and is an enlarged portion of the tool bore for receiving a shaft portion which is a locking boss on the burr shaft having a diameter larger than the diameter of the burr shaft.
11. (Currently Amended) The torque transfer arrangement of claim 7 ~~any one of claims 1 to 10~~, characterized in that the locking socket has a cross-section complementary to a shaft portion of triangular cross-section.



Appl'n No: 10/539,741

Preliminary Amd't dated January 16, 2006

12. (Original) The torque transfer arrangement of claim 7, characterized in that the locking portion of the burr shaft is a terminal portion of the burr shaft and the locking socket is a hollow spindle having a cylindrical bore for receiving the burr shaft, the torque transfer member being a protrusion extending radially inwardly into the cylindrical bore for preventing rotation of the locking portion of the burr shaft in relation to the spindle while permitting axial insertion of the burr shaft into the spindle.

13. (Original) The torque transfer arrangement of claim 12, characterized in that end surfaces of the protrusion and the terminal portion which come into mutual contact during insertion of the burr shaft into the spindle have a rounded shape for directing the end surface of the terminal portion past the protrusion to achieve a self-alignment of the terminal portion relative to the protrusion during insertion of the burr.

14. (Original) The torque transfer arrangement of claim 12, characterized in that the spindle further includes a burr retaining element extending into the cylindrical bore for releasably engaging a complementary retaining element on the burr shaft to releasably lock the burr shaft in the cylindrical bore against axial movement.

15. (Original) A medical or dental turbine handpiece for a rotatable tool, having a handle portion for gripping by a user, a drive head connected with the handle portion and forming a turbine housing, a turbine in the turbine housing for rotatably driving the tool about an axis of rotation and having an axial tool bore for receiving the shaft of the tool, a pair of axially spaced apart bearings for rotatably supporting the turbine in the turbine housing, and a pressurized drive air conduit for supplying pressurized turbine drive air to the turbine, characterized in that the

Appl'n No: 10/539,741  
Preliminary Amd't dated January 16, 2006

bearings are air bearings, and that the handpiece includes a bearing air conduit for supplying pressurized bearing air to the air bearings independent of the turbine drive air.

16. (Original) The handpiece of claim 15, characterized in that it further includes a controller for controlling a flow of the pressurized drive air through the drive air conduit separate and independent from a flow of the bearing air through the bearing air conduit.

17. (Original) A method of operating a dental handpiece including an air turbine driven by pressurized drive air and a pair of air bearings for supporting the air turbine in the handpiece and operated by pressurized bearing air, characterized by the steps of supplying pressurized bearing air to the air bearings, and supplying pressurized drive air to the turbine independent of the bearing air, the step of supplying bearing air being commenced prior to supplying drive air and continued at least as long as the step of supplying drive air.

18. (Original) A medical or dental turbine handpiece for a rotatable tool, having a handle portion for gripping by a user, a drive head connected with the handle portion and forming a turbine housing, a turbine in the turbine housing for rotatably driving the tool about an axis of rotation and having an axial tool fore for receiving the tool, and a pressurized turbine drive air supply conduit, characterized in that the drive head includes a turbine drive air supply chamber connected to the drive air supply conduit for receiving drive air, and that the supply chamber extends about the turbine chamber for supplying turbine drive air to the turbine at least at two spaced apart locations distributed about the axis of rotation.

19. (Original) The handpiece of claim 18, characterized in that the turbine drive air supply chamber is an annular chamber extending concentrically about the axis of rotation.

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Fax: 313-965-8570

Jan 18 2006 12:06

P. 11

Appl'n No: 10/539,741

Preliminary Amd't dated January 16, 2006

20. (Original) The handpiece of claim 19, characterized in that the supply chamber supplies drive air to the turbine at a multitude of locations evenly distributed about the axis of rotation.

21. (Original) The handpiece of claim 18, characterized in that the drive head further includes a Venturi passage connecting the drive air supply chamber to the turbine chamber for accelerating the drive air prior to impinging on the turbine.

22. (Original) The handpiece of claim 21, wherein the Venturi passage includes multiple air guide vanes for directing the turbine drive air onto the turbine in a direction generally radially inwardly towards the axis of rotation.

23. (Original) A medical or dental turbine handpiece for a rotatable tool having a handle portion for gripping by a user, a drive head connected with the handle portion and forming a turbine housing, a turbine in the turbine housing for rotatably driving the tool about an axis of rotation and having an axial tool bore for receiving a shaft of the tool; and a pair of axially spaced apart bearings for rotatably supporting the turbine in the turbine chamber for rotation about the axis of rotation, characterized in that the bearings are air bearings.

24. (Original) The handpiece of claim 23, characterized in that each air bearing includes a bearing stator having the shape of a spherical section and a bearing rotor of complementary shape, and that the bearing rotor and stator are shaped to define an intermediate bearing gap of even width throughout.

Appl'n No: 10/539,741

Preliminary Amd't dated January 16, 2006

25. (Original) A medical or dental turbine handpiece having a handle for gripping by a user, a drive head attached to the handle and forming a turbine chamber, an air driven turbine in the turbine chamber for rotatably driving a tool, the turbine being operated by turbine drive air, and a swivel connector for rotatably connecting the handle to an umbilical cord including at least a supply conduit for the turbine drive air, characterized in that the swivel connector has an angled connector body for connecting the handle and the umbilical cord at an angle of less than 180 degrees to reduce user wrist strain.

26. (Original) The handpiece of claim 25, characterized in that the handle and the umbilical cord are connected at an angle between 90 and 180 degrees.

27. (Original) A medical or dental turbine handpiece for a rotatable tool having a shaft including a drive head for rotatably supporting the tool and forming a turbine housing, a turbine in the turbine housing for rotatably driving the tool about an axis of rotation, a pair of axially spaced apart bearings for rotatably supporting the turbine in the turbine housing, a pressurized drive air conduit connected to the turbine housing for supplying pressurized turbine drive air to the turbine, and an exhaust conduit connected to the turbine housing for removing spent turbine drive air from the turbine housing, characterized in that the handpiece further includes a shut-off valve for reducing turbine run down time when the supply of turbine drive air is stopped, that the shut-off valve is connected to the drive air conduit and the exhaust air conduit and that the shut-off valve includes a closure member normally biased into a closed position wherein the closure member closes both the drive air and exhaust conduits and movable by drive air pressure to an open position wherein the closure member permits passage of drive air and exhaust air through the drive air and exhaust conduits respectively.

Appl'n No: 10/539,741

Preliminary Amd't dated January 16, 2006

28. (Original) The handpiece of claim 27, characterized in that the bearings are air bearings, that the handpiece further includes a bearing air supply conduit connected to the drive head for supplying pressurized bearing air to the air bearings, and that the supply conduit supplies the bearing air independent of the position of the closure member of the shut-off valve.

29. (Original) The handpiece of claim 28, characterized in that the shut-off valve is incorporated into the handle portion and that the closure member is a sleeve axially movable in the handle portion between the open and closed positions.

30. (Original) A medical or dental turbine handpiece for a rotatable tool having a working tip, the handpiece including a handle portion for gripping by a user, a drive head connected with the handle portion by an intermediate neck portion, the drive head forming a turbine housing, a turbine in the turbine housing for rotatably driving the tool about an axis of rotation and having an axial tool bore for receiving the shaft of the tool, and a pair of axially spaced apart bearings for rotatably supporting the turbine in the turbine housing, characterized in that the handle portion has a longitudinal central first axis and the neck portion has a longitudinal central second axis, that the drive head, neck portion and handle portion being interconnected in such a way that an angle enclosed by the axis of rotation of the tool with the first axis is larger than 90 degrees and with the second axis is less than 90 degrees, and that the second axis is oriented at an angle to the first axis such that the tool tip coincides with the first axis.

31. (Original) A medical or dental turbine handpiece for a rotatable tool, including a handle portion for gripping by a user, a drive head forming a turbine housing, an intermediate neck portion connecting the drive head with the handle portion, a turbine in the turbine housing for rotatably driving the tool about an axis of rotation and having an axial tool bore for receiving the

Appl'n No: 10/539,741

Preliminary Amd't dated January 16, 2006

shaft of the tool, and a pair of axially spaced apart bearings for rotatably supporting the turbine in the turbine housing, characterized in that the handpiece further includes a neck connecting arrangement for releasably connecting the neck portion to the handle portion, that the neck connecting arrangement includes a socket portion on one of the neck portion and the handle portion and a plug portion on the other of the neck portion and handle portion, and that the plug and socket portions are of complementary shape for non-rotatably connecting the neck and handle portions.

32. (Original) The handpiece of claim 31, characterized in that the neck connecting arrangement further includes a snap lock for releasably locking the plug portion in the socket portion.

33. (Currently Amended) A dental burr for a dental turbine handpiece ~~[[hand piece]]~~, the burr having a working tip and a shaft for insertion into the handpiece ~~[[hand piece]]~~, characterized in that the shaft includes a shaft portion of non-circular cross-section for torque transferring engagement with a burr receiving locking socket in the handpiece ~~[[hand piece]]~~.

34. (Original) The burr of claim 33, characterized in that the shaft portion has a triangular cross-section.

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Jan 18 2006 12:07

P. 15

Appl'n No: 10/539,741

Preliminary Amd't dated January 16, 2006

REMARKS

Claims 1-34 remain in the application. Claims 5, 6, 33 have been amended to correct minor typographical errors. Additionally, claim 11 has been amended to eliminate a multiple dependency and rather depend from only independent claim 7.

Applicant respectfully requests entry of this preliminary amendment to the claims and examination on the merits. It is respectfully submitted that this patent application is in condition for allowance, which allowance is respectfully solicited. If the Examiner has any questions regarding this amendment or patent application, the Examiner is invited to contact the undersigned.

Respectfully submitted,



Robin W. Asher (Reg. No. 41,590)  
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500 Woodward Avenue, Suite 3500  
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(313) 965-8300

Date: 1/17/06  
Attorney Docket No: 25266-101943

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(3) FISH & RICHARDSON 6175428906

NO. 6986 P. 1

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Date January 18, 2006

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Facsimile number 09391-00200001 / (571) 273-6500

From Lindsay L. Lisenby  
Annuity Coordinator

Re PORTABLE PNEUMATIC PRECISION METERING DEVICE

Applicant: Frank G. Reinsch et al.

Application No.: 08/678,033

Filing Date: July 10, 1996

Patent No.: 5,803,673

Issue Date: September 8, 1998

Country: United States

Our Ref.: 09391-002001

Number of pages  
including this page 2

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Please recognize as the "Fee Address" under the provisions of 37 CFR 1.363 the address associated with:

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OR

☐ Request for Customer Number (PTO/SB/125) attached hereto

In the following listed application(s) for which the Issue Fee has been paid or patent(s).

PATENT NUMBER (If known)	APPLICATION NUMBER
5,803,673	08/678,033

Completed by (check one):

☐ Applicant/Inventor

☒ Attorney or Agent of record 39,823  
(Reg. No.)

☐ Assignee of record of the entire interest. See  
37 CFR 3.71. Statement under 37 CFR 3.73(b)  
is enclosed. (Form PTO/SB/98)

☐ Assignment recorded at Recd \_\_\_\_\_ Frame \_\_\_\_\_

Signature

Mathias W. Samuel  
Typed or printed name

612-335-5070  
Requester's telephone number

1/9/06  
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below \*.

☒ \*Total of 1 forms are submitted.

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09391-002001

JAN. 18. 2006 12:17PM

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NO. 6987 P. 1

## FISH & RICHARDSON P.C.

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Date January 18, 2006

To Mail Stop M Correspondence  
Director of the United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313 - 1450

Facsimile number 10363-00200001 / (571) 273-6500

From Lindsay L. Lisenby  
Annuity Coordinator

Re CYTOKINE-STRESS AND ONCOPROTEIN ACTIVATED HUMAN PROTEIN  
KINASE KINASES

Applicant: Roger J. Davis et al.

Application No.: 08/446,083

Filing Date: May 19, 1995

Patent No.: 5,804,427

Issue Date: September 8, 1998

Country: United States

Our Ref.: 10363-002001

Number of pages  
including this page 2

Message Please see the attached Fee Address Indication Form regarding the above-referenced patent.

NOTE: This facsimile is intended for the addressee only and may contain privileged or confidential information. If you have received this facsimile in error, please immediately call us collect at 617 542-5070 to arrange for its return. Thank you.

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(3) FISH &amp; RICHARDSON 6175428906

NO. 6987 P. 2

FISH &amp; RICHARDSON P.C.

PTO/SB/47 (05-03)

**"FEE ADDRESS" INDICATION FORM**

Address to:  
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In the following listed application(s) for which the Issue Fee has been paid or patent(s).

PATENT NUMBER (if known)	APPLICATION NUMBER
5,804,427	08/446,083

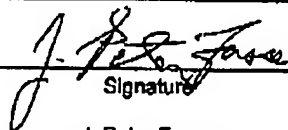
Completed by (check one):

☐ Applicant/Inventor

☒ Attorney or Agent of record 32,983  
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Signature

J. Peter Fasse

Typed or printed name

617-542-5070

Requester's telephone number

1/9/06

Date

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